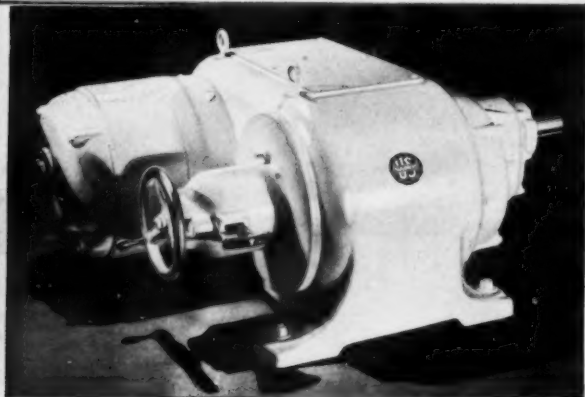


Hitchcock's Machine Tool Blue Book

DECEMBER, 1934

TWENTY-NINTH YEAR



At the turn of a wheel—**1000 SPEEDS** **U. S. VARIDRIVE MOTOR** *with Syncrogear*

The new U. S. Varidrive motor offers any and all speeds over a wide range. It combines in an integral compact unit the simplest mechanism for replacing and performing the functions of an electric motor, intermediate couplings and transmissions, variable speed device and geared speed reducer.

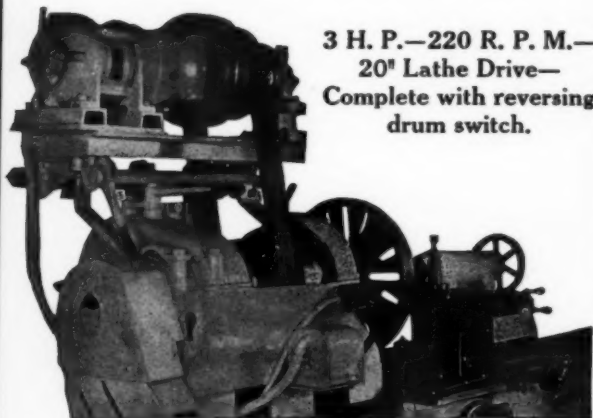
MICRO-SPEED CONTROL—1 r. p. m. to 10,000 r. p. m.

Send for new descriptive bulletin.

U. S. ELECTRICAL MFG. CO., 1522 So. Western Ave., Chicago, Ill.

PUBLISHED AT 508 So. DEARBORN ST. CHICAGO

Machine Tool Motorization



3 H. P.—220 R. P. M.—
20" Lathe Drive—
Complete with reversing
drum switch.

Modernize your cone pulley machines by the addition of one of these sturdy drives. Easy to attach—4 bolts and a short belt making your machine ready for heavy production. Complete drives available for a wide range of machines.

WRITE FOR DATA

THE PRODUCTION EQUIPMENT CO.

5213 Chester Ave.,

CLEVELAND, OHIO

Hitchcock's Machine Tool Blue Book

**Selected
Circulation**

**20,000
Monthly**

DECEMBER, 1934

TWENTY-NINTH YEAR

The Corner's Turned

According to "Business Week" of November 24th, the sale of machine tools this year in the United States alone will amount to over \$40,000,000—the best year since 1931. With \$9,000,000 foreign orders added, the annual total will amount to nearly \$50,000,000.

That is encouraging so far as it goes. But the showing for 1935 should be much better. The need for new equipment in industrial plants is tremendous. And with the federal administration and business agreeing upon closer cooperation, pessimism gradually is giving way to a conservative optimism.

As confidence in the business situation becomes more pronounced, it is reasonable to believe that manufacturers of machine tools will experience a growing demand for the equipment that is so sorely needed.

It has started—slowly, perhaps. But it is on the way, with many indications of increasing speed.



Published By

Hitchcock Publishing Co.
508 S. Dearborn St., Chicago, Ill.

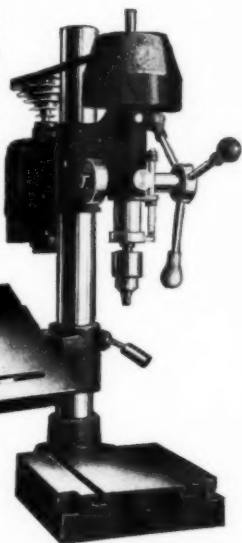
Consult the Classified Finding Index for your requirements

Built for Production

and is accurate to an extreme —with a long-life, built-in accuracy—it's rigid because of the extra heavy construction. The head is equipped with double row ball bearings at top of spindle as well as two additional sets, thus assuring accuracy, rigidity and smoothness of operation. Runs smoothly at speeds to 10,000 r. p. m.

New from spindle to base — this husky, well-designed tool sells at a price which competes with many inferior tools now on the market.

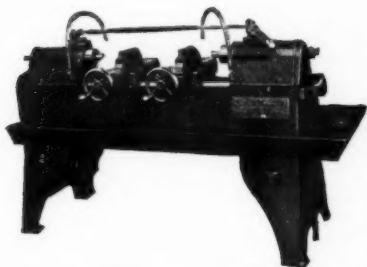
Floor and Bench Types—
described in bulletin 2951.
Write NOW for this bulletin
and prices.



Buffalo Forge Company
161 Mortimer Street, Buffalo, N. Y.
In Canada: Canadian Blower & Forge Co., Ltd., Kitchener, Ont.

"Buffalo"

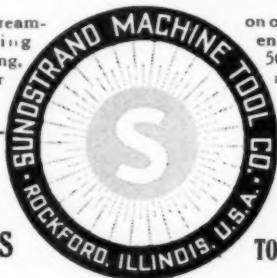
**15-Inch
Heavy-Duty
Production Drills**



CENTERING MACHINES

For drilling, reaming, tapping, countersinking, and similar operations;

on one end or both ends at once. No. 56 shown. Others available. Accurate. Fast.



BENCH CENTERS

3-WHEEL TOOL GRINDER

Accurate, compact, portable. Adjustable heads. Quick-acting spindle. Seven sizes.



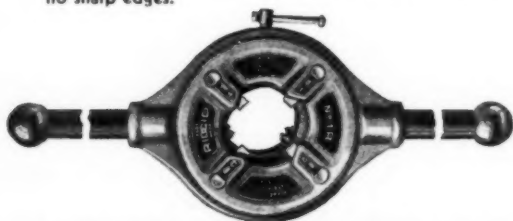
For grinding and honing tungsten carbides — steel — stellite. 3 types. Get new circular.



These Sundstrand tools, like our Lathes and Milling Machines, cut costs and make work easier. " " " **INVESTIGATE!** Address our Dept. H for details.

7 REASONS WHY You'll Like The New **RIGGID** POSTER THREADER

1. Direct drive over chasers—no wobble, greater precision.
2. Full-floating posts carry no load, simply taper threads. Not riveted, easily replaced.
3. Chaser locks enclosed—can't be damaged.
4. Ratchet lever snaps into exact position. Sets at "Locked" position for solid die.
5. Workholder sets to size mechanically—put on pipe, tighten with one screw.
6. Alloy tool steel chasers interchangeable—fit any poster type threader.
7. Tool weighs only 12 lbs. Rugged strength, rust-proof, no sharp edges.



No. 1R, 1" to 2", 4 sets of chasers, 1 or 2 handles.
Now 11 threaders in complete line, meeting all
needs to 2" thread. Ask your jobber.



The Ridge Tool Co., Elyria, O., U. S. A.

RIGGID

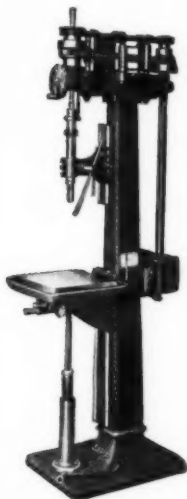
Pipe Wrenches

Cutters

Vises

Threaders

FOOTBURT



A Single Spindle Footburt Sipp Sensitive Drill

**Made in three
sizes of single
and multiple
spindle models**

More holes with this machine

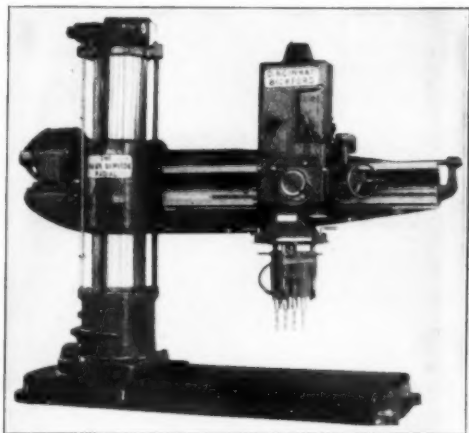
Why? Because you can change speeds in two seconds or belts in ten seconds—because the automatic idlers keep the belt pulling to capacity at all times—because the full ball bearing equipment and accurate machining gives a smooth, fast cut.

Write for No. 650 Folders

The Foote-Burt Company, Cleveland, O.

FOOTBURT

Multiple Spindle Drill Heads Used on Cincinnati Bickford Super Service Radial Drills



The use of multiple spindle drill heads on radial drills has been made efficient by recent developments of the Cincinnati Bickford Tool Company. A patented self-counter-balancing mounting bracket has been perfected which provides rigid support, compensates for the weight of the drill head, and causes its quick return from the work. The multiple head and mounting bracket may be removed in a few minutes, thus quickly converting the machine to a standard single spindle radial drill.

The illustration shows a swivel type mounting which permits a complete circle rotary adjustment of the drill head. This particular ball bearing drill head carries four $\frac{1}{2}$ in. drills spaced on $3 \frac{1}{16}$ in. centers. Cutting lubricant is supplied to each drill by separate nozzles. This machine also may be converted to a standard 7 in. Super Service Radial in a few minutes.

The drill head shown in the illustration has the spindles in line, but other types of drill heads are equally applicable. Bolt circle drilling of several diameters is being handled on a Super Service Radial with an adjustable center distance drill head. The use of a multiple spindle drill head causes no sacrifice in drilling efficiency or in the ease of handling the Super Service Radial.

KRW Hydraulic and Sensitive ARBOR PRESSES

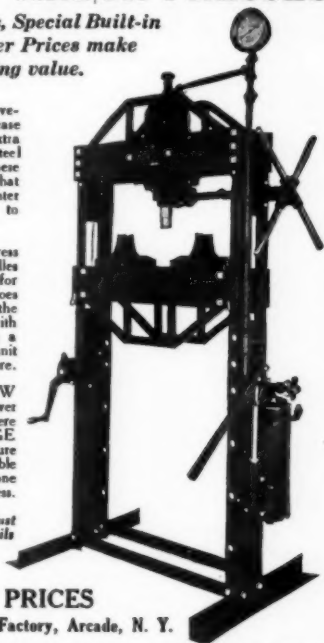
New Improvements, Special Built-in Features and Lower Prices make them an outstanding value.

THE last word in convenience, efficiency and ease of operation. Built extra strong and well braced, with steel trusses electrically welded, these presses will withstand strains that would cause presses of lighter and inferior construction to buckle or collapse.

Hand wheel for sensitive press operations has sliding handles which pull out to the ends for increased leverage. Work does not have to be changed from the work table as is the case with other make presses having a separate sensitive press unit mounted on the side or elsewhere.

The importance of this KRW feature as a time and labor saver can be appreciated. Also there is **NO EXTRA CHARGE** for this important built-in feature on a KRW Press. Work table can be raised easily with one hand. A strictly one-man Press.

Write for special circular, just off the press, giving full details and specifications of all KRW Arbor Presses.



PRICES

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- | | |
|---|----------|
| No. 37—35 ton Hydraulic and Sensitive Arbor Press (hand operated) | \$128.00 |
| No. 37B—35 ton Hydraulic and Sensitive Arbor Press (air-oil operated) | 128.00 |
| No. 37E—50 ton Hydraulic and Sensitive Arbor Press (hand operated) | 150.00 |
| (Can also be furnished in air-oil operated at same price) | |
| No. 37F—70 ton Hydraulic and Sensitive Arbor Press (hand oper. only) | 275.00 |
| Gauge and fittings, \$15.00 extra on all presses. | |

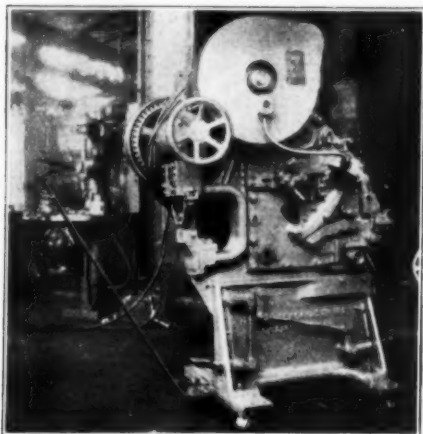
K. R. WILSON

10-16 Lock Street, Buffalo, N. Y., U. S. A.

EXPORT DEPARTMENT
90 West St., New York, N. Y.

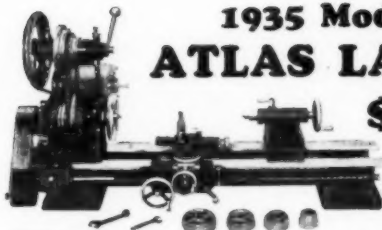
WEST COAST BRANCH
722 Mateo St., Los Angeles

A Full Size, Fully Portable Combination Shear, Punch and Coper



These portable machines have all the standard features of the cast steel combination machines which the Ryerson Company has been selling for several years. To better meet requirements in certain fields, a ball bearing caster and steel channel mounting has been arranged so that the machine can be easily pulled anywhere about the shop. A fifty foot extension cable provides motor connection to most any location. An extension lamp assures proper working light in dark places. The handle for pulling the machine can be quickly connected at either end so that it is not even necessary to turn the machine completely around to run it in the opposite direction.

The frame is a one piece alloy steel casting with the various attachments built in at the proper working heights. The machine handles punching, plate and bar shearing, angle and tee cutting, angle mitering, coping and notching. Can be furnished in various sizes and capacities. Complete information can be had by addressing Joseph T. Ryerson & Son, Inc., Chicago.



1935 Model ATLAS LATHE

\$87.50

Complete



ATLAS DRILL PRESSES



\$13.95

to

\$33.50

A larger, more powerful lathe for 1935—a lathe that will do a real job on everything it tackles. Complete screw-cutting, back-gear. Integral drive. 16 speeds. 10" swing, 24" between centers. Heavy, sturdy back gears give this lathe tremendous power. In our own shop we have repeatedly reduced the diameter of a 3" cold-rolled steel bar **three-quarters of an inch** in a single cut. Self-contained countershaft—ready to run. Automatic, reversible feeds. Graduated compound rest. Other sizes up to 54" between centers.

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Atlas Press Company

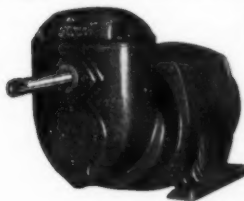
1850 N. Pitcher St., Kalamazoo, Mich., U. S. A.

Please send catalog of metal lathes, drill presses, attachments, also arbor presses.

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MOTORIZED UNITS

Ratios Up To 6 to 1— $\frac{1}{8}$ to 3 H. P.

Send for Circular

Abart

Gear and Machine Co.
4832 W. 16th St., Cicero, Ill.

The New Globe Type "A" Automatic Hopper Fed Tapping Machine

The Globe Tapping Machine Company, 751 Central Avenue, Bridgeport, Conn., designers and builders of high production multi-spindle drilling and tapping machines, have recently developed an entirely automatic hopper feed machine known as the Globe Type "A". It has a production range from 120 to 180 pieces per minute of single hole parts either tapped, drilled, countersunk, threaded, hollow milled, etc. Rate of production depends upon the size of the tap and depth of the thread. Ordinary commercial straight shank high speed taps are used which is an important feature.

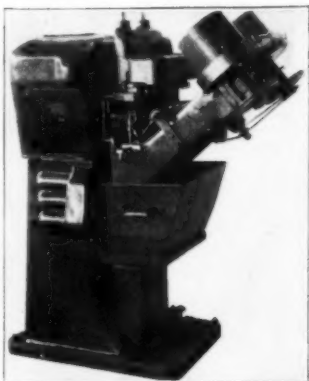


Illustration shows a type A machine with two hoppers, six chutes and six ball bearing tapping spindles, built for a large manufacturer of special nuts and arranged for a special type sleeve nut having a 10-24 thread $7/16''$ deep. Nuts are dumped into two hoppers and as they revolve are fed down through the six chutes, tapped and ejected at a rate of 150 complete nuts per minute. A similar machine was constructed for one of the large automobile concerns to countersink automobile parts at a rate of 150 complete per minute.

The machine is not limited to handling one part but several different types and sizes of parts can be handled, if necessary, merely by changing the chutes and an adapter ring in the hoppers and relocating the spindles which are adjustable for location. The spindles are so constructed that the tap follows its own lead, permitting the use of different sizes on the same machine. The construction and drive is of the same rugged and compact design typical of other Globe machines and is entirely equipped throughout with ball and roller bearings. Complete information may be obtained by writing to the Globe Tapping Machine Co. at the address given above.

For Light and Heavy Etching

With 24 Stages of Control.

The LUMA Master Etchtool fulfills every marking requirement that can be done by an electric Etching outfit.

A Production Tool with as many as 24 different stages or varieties of control for regulating the depth of marking, this tool can be used for extra light marking of machine cast scales, micrometers and fine tools or can be used or extra heavy and deep marking of rough and unfinished iron, cast iron, forgings, steel plates, etc.

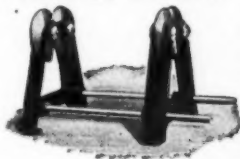
Send for circular giving complete data and details of this modern instrument.



Built rugged for continuous work on the production line.

LUMA ELECTRIC EQUIPMENT CO.
DEPT. H.—Main P. O. Box No. 131—TOLEDO, OHIO

Anderson Ever Ready
Exceedingly Sensitive



Balancing Ways
Easy to Manipulate

Made in six sizes to balance anything that revolves from a crank shaft to a 24,000 lb. turbine rotor. They require no special leveling, no adjustment, and no centers.

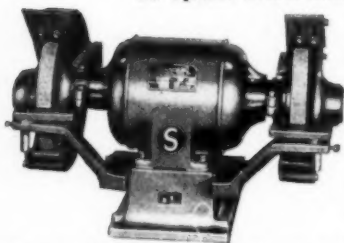
Equipped with glass-hard spindles, chilled steel discs, and especially sensitive ball bearings, to give accurate, long time service.

"Swing"	20"	40"	60"	72"	96"	72"
Greatest distance bet. standards	20"	30"	30"	66"	88"	20"
Capacity in lbs.	1000	2000	2000	5000	10000	24000
Approx. shipping weight	45	90	150	350	650	
Code	Bend	Bid	Bis	Bib	Ben	

Anderson Bros. Mfg. Co.
1915 Kishwaukee St., Rockford, Ill.

New Standard Electrical Grinders

10" Special Bench Grinder



The Standard Electrical Tool Co., 1938-48 West Eighth St., Cincinnati, Ohio have placed on the market a Special Bench Grinder which is equipped with 10" diam. x 1" face grinding wheels.

This machine is intended for shops where requirements are not continuous and is a supplement to their line of Heavy Duty Grinders. Can be furnished with a Buffer Extension in place of grinding wheel on the right side.

Surface and Tool Grinder

This Surface and Tool Grinder is also a recent development of The Standard Electrical Tool Co.

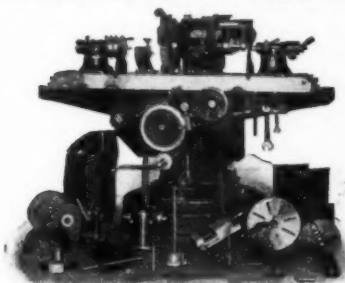
Furnished in 1 H. P. and 2 H. P. sizes, equipped with 10"x1" and 12"x1½" grinding wheels, respectively.

The table measures 11"x21". Five turns of the hand wheel adjusts the table 1". The hand wheel spindle is fitted with an adjustable dial, graduated by thousandths. Maximum distance of wheel to table is 12". The base measures 20"x28".



(Continued on Page 16)

SIX Grinders In ONE



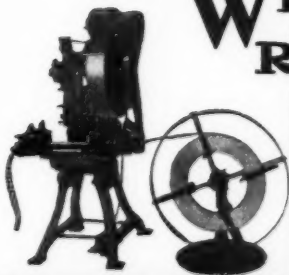
**12"x36"
Thompson
Universal
Grinder**

Does every grinding operation required in the machine shop. Lowest cost work for plain, surface, die, cutter, edge and internal grinding. All standard machines equipped with auxiliary independent coarse cross feed for surface grinding.

Let us send you the Illustrated Booklet today!

The Thompson Grinder Company
1534 West Main St., :~: Springfield, Ohio

WITTEK AUTOMATIC Roll Feeds



FOR PUNCH PRESSES

Will feed from 0" to 30" per stroke. Fits any size or make of press.

**Fast
Accurate
Automatic**

Low in first cost. No upkeep. Built with or without straightener to meet all feeding conditions.

*Write for Bulletin FH
and free trial offer.*

WITTEK MFG. CO.
4305 W. 24TH PL. CHICAGO, ILL.

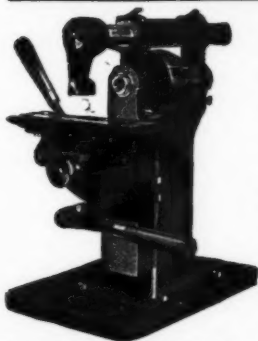
Illustration on previous page shows machine fitted with Twist Drill Grinding Attachment and Exhaust Blower Attachment, which is optional. Net weight is 549 pounds. The Standard Electrical Tool Co., now have ready for distribution Price List No. 37, dated November 1, 1934, applying to Catalog No. 37.

Onsrud Develops High Speed in a Small Grinder, Without Vibration or Overheating



The MD-1 Onsrud Grinder, illustrated above, develops $\frac{1}{4}$ H. P. at 50,000 R. P. M. and weighs only 1 lb., 15 oz. It is sturdily constructed, and because of its $\frac{1}{4}$ H. P., it cannot be stopped or slowed down on any grinding operation within its scope. It will never overheat, as it is always operating at room temperature, and is lubricated by a centrifugal 4-speed method.

It makes possible the use of high speed for small grinding wheels, rotary files and cutters, the result of 15 years' specialization in high speed spindles. The Onsrud patented impulse reaction type air turbine rotor is used and the centralized balanced drive is not affected by overloading. A full description of this new High-Speed Grinder can be obtained by writing to the Onsrud Machine Works, Inc., 3906 Palmer St., Chicago, Ill.



BURKE

Milling Machine

This milling machine is designed to speed up and economize the milling of work too small to be profitably handled on larger millers.

It is one of a line of five millers that are fast, accurate and dependable.

No. 3 Hand Feed Milling Machine

Write for Circulars

The Burke Machine Tool Co., 297 E. 16th St.,
Conneaut, Ohio

ARMSTRONG

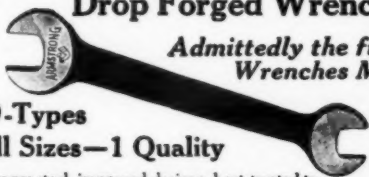
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Drop Forged Wrenches

*Admittedly the finest
Wrenches Made*

50-Types

All Sizes—1 Quality



Stronger steel, improved designs, heat treated to proper balance of stiffness and tensile strength accurately milled to all standard openings, finished in black baked enamel with heads ground bright and plainly marked for size. Buy **ARMSTRONG WRENCHES** with confidence, knowing that they will stand up under abuse and give long satisfactory service.

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Catalog**



ARMSTRONG BROS. TOOL CO.

"The Tool Holder People"

308 N. Francisco Ave., CHICAGO, U. S. A.



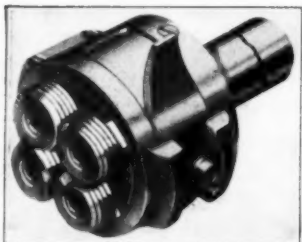
TANNEWITZ

Abrasive Cut-off Machine

Uses Abrasive Wheels or Saws, and instantly swivels and cuts any angle from 45° left to 45° right, doing clean, instantaneous work on metal bars, shapes or tubes.

THE TANNEWITZ WORKS
GRAND RAPIDS, MICH.

Announcing a New Line of National Acme Circular Chaser Die Heads for Brown & Sharpe Automatic Screw Machines



The National Acme Company, Cleveland, Ohio, announces a new line of self opening die heads which have been developed to meet the demands for an accurate, compact head with long chaser life, for use on all sizes of Brown & Sharpe single spindle automatic screw machines. The minimum cutting capacity is .036.

They cut either straight or tapered threads in a wide variety of thread forms, right or left hand.

Each part is made of a special alloy steel, heat treated and precision ground, and all parts are interchangeable. The chasers are ground on the thread forms to extremely close limits of accuracy, and they can be repeatedly ground until the periphery has been used up. Sharpening of chasers does not change the length of thread because the die chaser is always in the same relative plane until the entire circumference has been ground away.

The closing attachment is usually located so that the die head is closed when turret is indexed to operating position. This eliminates any possibility of die head opening when the turret is indexing.

The National Acme Company will be glad to mail full description of their new Circular Chaser Die Heads upon request.

**BETTER-MADE
DIE SETS**

BAUMBACH

**AT LOWER
COST**

**24
DIFFERENT
STYLES**



**OVER
95,000
SIZES**

STANDARDIZED

Semi-Steel

DIE SETS

Drop Forged Steel

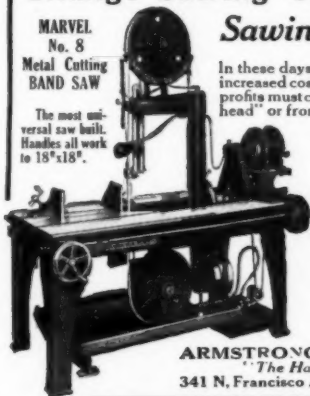
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E. A. BAUMBACH MFG. CO.
1810 South Kilbourn Ave., CHICAGO, ILLINOIS

Change Sawing Costs to Sawing PROFITS

**MARVEL
No. 8
Metal Cutting
BAND SAW**

The most uni-
versal saw built.
Handles all work
to 18"x18".



In these days of levelled selling prices, increased costs and coded charges, extra profits must come from decreased "overhead" or from extended operations.

Install a MARVEL No. 8 and pay *yourself* the "warehouse cutting extras." Eliminate slow and expensive roughing to size and shape. Cut inventory investment by stocking fewer sizes of steel... pay *yourself* the profit on all sawing operations.

Write for Bulletin

ARMSTRONG-BLUM MFG. CO.
"The Hack Saw People"
341 N. Francisco Ave., CHICAGO, U. S. A.

VISE

**A good one for Driller,
Miller, Shaper, or Planer.**

6', 9' and 12' Jaws

— DRILL — SPEEDER

OR
H. S. Drilling
Attachment

**Increases
the Speed
3 Times**



Without Jig Attachments

KNURL HOLDER

for Turret Lathes

Adjustable to any size within capacity.



Shank 
to suit Turret

THE GRAHAM MFG. CO.
70 Willard Ave., PROVIDENCE, R. I.

Handbook on Cemented Carbides

Thomas Frosser & Son, 15 Gold St., New York City, announce that they have prepared for distribution a handbook and catalog on WIDIA Cemented Carbides, as used in tools, wear-resisting parts, and other similar applications. The handbook contains twenty-four pages and cover, and is 8½x11" in size.

This book covers the following points: method of manufacture; salient characteristics; advantages to be obtained through the use of WIDIA Cemented Carbides; various grades available and their particular applications; recommendations regarding the modern methods of use of the cemented carbides; proper tool design; practical application of the metal cutting theory for practical men—the advantages to be obtained from high speeds possible with cemented carbide tools; recommended grinding procedure; and brazing instructions—how to make your own cemented carbide tools.

(Continued on Page 22)

STANDARDIZATION PAYS

Universal Joints

Steel and Bronze



Send for Circular giving specifications
and prices on complete line

BOSTON GEAR WORKS, INC.

DEPT. HMT,

NORTH QUINCY, MASS.

BOSTON NEW YORK PHILADELPHIA CLEVELAND CHICAGO
Sales Offices in Springfield, Mass., Utica, N. Y. and Dayton, Ohio

BOSTON GEARS

TAPPING DEVICES

HAVE BEEN OUR SPECIALTY FOR OVER 25 YEARS

NOW THE NEW
"PROCUNIER"

**SENSITIVE
HIGH SPEED**

**TAPPING
ATTACHMENT**

**FRICTION DRIVE
At Spindle Speed**

**FRICTION REVERSE
At Twice Spindle
Speed**

BALL

Also other sizes
and styles



BEARINGS

Write for our catalog
with prices

PROCUNIER SAFETY CHUCK CO.

14 S. Clinton St.,

Chicago, Ill.

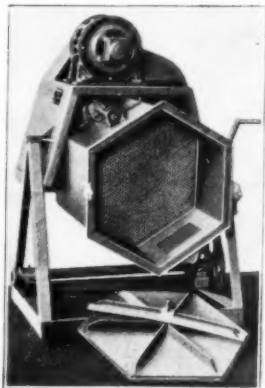
The handbook is profusely illustrated, and several pages are devoted to photographs showing some recent applications of WIDIA Cemented Carbide to various special tools, such as intricate cutters, as well as various sand blast nozzles, centerless grinder rests, thread guides and electrical contact points.

Thomas Prosser & Son will gladly forward one of these handbooks, without charge, to anyone who is interested, upon request.

New "Ideal" Burnishing Barrel

A Burnishing Barrel which permits the handling of small batches with the economies effected by automatic transfer of burnishing balls, is announced by N. Ransohoff, Inc. Hitherto the "Ideal" system by which balls and work are automatically separated and balls recharged into burnishing section without manual handling has been confined to large batches.

While this new "Ideal" Barrel may be charged with work as large as it will accommodate, it is equally effective on small lots, which are loaded through the small door.



When the burnishing is completed, the tilting of the barrel causes the balls to sift out of the work and return to the ball compartment.

No labor is required for handling balls. Charging and discharging are speeded. Because a heavier load of balls can be economically used, finishing is achieved more rapidly and the quality of the work is said to be greatly improved.

A full description of the new "Ideal" Burnishing Barrel will be furnished on request by N. Ransohoff, Inc., Cincinnati, Ohio.

Please say "Blue Book" when writing to advertisers.

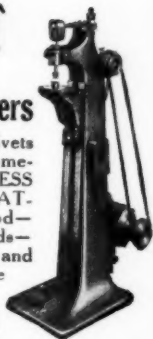


GRANT

Riveters--Pioneers

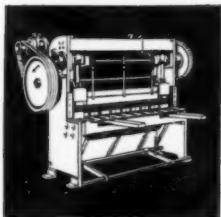
in their line—Head rivets from smallest to $\frac{3}{8}$ " diameter either by NOISELESS SPINNING or VIBRATING HAMMER method—Sizes to meet all needs—Types include Vertical and Horizontal Multiple Spindles.

Write for literature—and don't forget to send samples.



The Grant Mfg. & Machine Co.
C. E. Station, Bridgeport, Conn.

Chicago Steel Power Shears



Lengths 3 to 16 ft.

Capacities, 14 ga. to 1" Plate.

Unbreakable Steel Construction.

All Modern Features for Fast and Accurate Shearing.

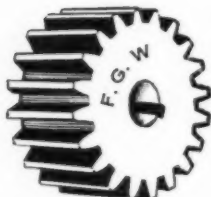
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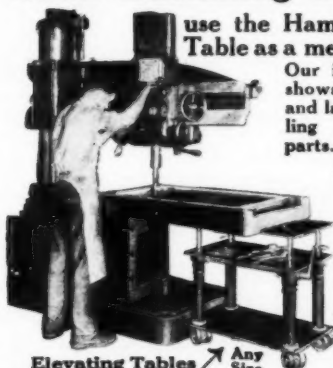
Many of these took the form of two or more holding devices mounted upon a two-part base so arranged that the upper portion could be rotated and locked securely in two or more positions.

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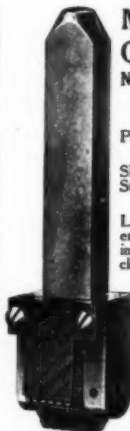
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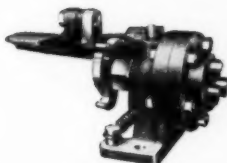
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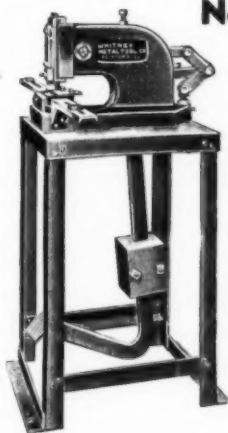
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CAPACITY: 2" hole in 16 gauge.

Throat depth 7"; height of throat 4".

Stroke of ram: 1" travel.

Speed of machine 100 holes per minute.

Toggle action makes it a very powerful Foot Press.

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Case diam.
4½ in.

Scale length
3½ in.

\$36

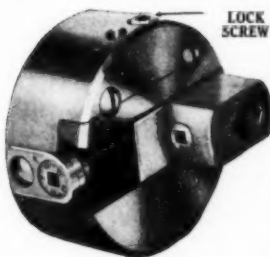
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No. 30



LOCK
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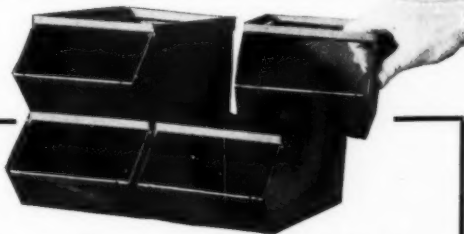


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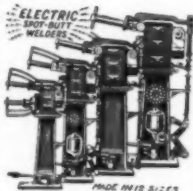
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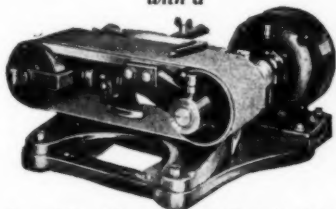
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Jaws open 6 3/4"

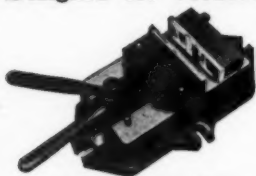
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J.E. Martin Tool & Die Works

528 W. State St.,

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Designed for Modern Production Needs !



Hartford Milling Vise

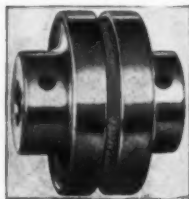
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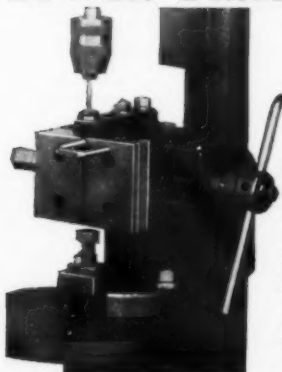
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TYPE MD-1



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Drels & Krump Mfg. Co., 7440 Loomis Blvd., Chicago, Ill.

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Wittak Mfg. Co., 4809 W. 34th Place, Chgo.

Punch, Shear and Bender, Hand

Armstrong-Blum Mfg. Co., 341 N. Francisco Ave., Chicago

Punches, Hand

Armstrong-Blum Mfg. Co., 341 N. Francisco Ave., Chicago
Buffalo Forge Company, Buffalo, N. Y.
Lewthwaite Mch. Co., T. H., 311 E. 47th., New York
Whitney Metal Tool Co., Rockford, Ill.

Punches and Dies

Lewthwaite Mch. Co., T. H., 311 E. 47th., N. Y.

Pyrometers

Illinois Testing Laboratories, Inc., 150 W. Austin Ave., Chicago

Pyrometers, Portable & Stationary

Illinois Testing Laboratories, Inc., 150 W. Austin Ave., Chicago, Ill.

Ratchets

Chicago Gear Works, 769 W. Jackson Blvd., Chicago, Ill.

Reamer Holders

W. H. Nicholson & Co., Wilkes-Barre, Pa.

Classified Finding Index

Riveters, Multiple Spindle

Grant Mfg. & Mche. Co., Bridgeport, Conn.

Riveters, Pneumatic

Grant Mfg. & Mche. Co., Bridgeport, Conn.

Riveting Machines

Grant Mfg. & Mche. Co., Bridgeport, Conn.

Rad Cutters

Armstrong-Bloom Mfg. Co., 341 N. Francisco
Av., Chicago
Leuthwaite Mche. Co., T.H., 311 E. 47th St., N.Y.

Routing Machines

Onsrud Machine Works, Inc., 3900 Palmer
St., Chicago, Ill.

Scraping Machines

Anderson Bros. Mfg. Co., Rockford, Ill.

Shafts, Flexible

Strand Co., N. A., 6001 N. Lincoln St., Chgo.

Shaping Machines

Osborne & Sexton Machy. Co., Columbus, O.

Shears, Hand

Armstrong-Bloom Mfg. Co. 341 N. Francisco
Av., Chicago
Leuthwaite Machine Co., T.H., 311 E. 47th
St., New York
Whitney Metal Tool Co., Rockford, Ill.

Shear, Power

Dreis & Krump Mfg. Co., 7440 Loomis
Blvd., Chicago, Ill.

Shears, Slitting

National Machine Tool Co., Racine, Wis.
Dreis & Krump Mfg. Co., 7440 Loomis
Blvd., Chicago, Ill.

Special Tools and Machinery

American Tool Works, Inc., Hartford, Conn.

Speed Reducers

Abart Gear & Machine Co., Cicero, Ill.
Boston Gear Works, Inc., North Quincy,
Mass.
Chicago Gear Works, 769 W. Jackson Blvd.,
Chicago, Ill.
Cullman Wheel Co., 1359 Altgeld St., Chgo.
Foote Gear Works, 4800 West 18th St.,
Chicago, Ill.

Speed Reducers, Motorized

The Production Equip. Co., Cleveland, O.

Spot Welding Machines, Speed.

Kaiser Engineering Co., Inc., Newark, N. J.

Sprockets

Boston Gear Wks. Inc., North Quincy, Mass.
Chicago Gear Works, 769 W. Jackson Blvd.,
Chicago, Ill.
Cullman Wheel Co., 1359 Altgeld St., Chgo.

Straightening Machines

Whitney Metal Tool Co., Rockford, Ill.

Stud Setters

Procurier Safety Chuck Co., 14 S. Clinton
St., Chicago

Tap Extractors

Walton Co., Hartford, Conn.

Tap Holders

Procurier Safety Chuck Co., 14 S. Clinton
St., Chicago

Tapping Attachments

Procurier Safety Chuck Co., 14 S. Clinton
St., Chicago, Ill.

Tapping Jigs, Universal

Heuser Mfg. Co., 1628 No. Paulina St.,
Chicago, Ill.

Tapping Machines and Attachments

Burke Machine Tool Co., Cosmesut, Ohio
Procurier Safety Chuck Co., 14 S. Clinton
St., Chicago, Ill.
Whitney Metal Tool Co., Rockford, Ill.

Thermometers, Resistance Type

Illinois Testing Laboratories, Inc., 159 West
Austin Ave., Chicago, Ill.

Threading Machines, Automatic, Stud

Grant Mfg. & Mche. Co., Bridgeport, Conn.

Threading Tools

Armstrong Bros. Tool Co., 308 N. Francisco
Av., Chicago
Ridge Tool Co., Elyria, Ohio.

Tool Holders

Armstrong Bros. Tool Co., 308 N. Francisco
Av., Chicago
Western Tool & Mfg. Co., Springfield, O.

Classified Finding Index

Tools, Boring

Armstrong Bros. Tool Co., 808 N. Francisco
Av., Chicago

Tools, Lathe and Planer

Armstrong Bros. Tool Co., 808 N. Francisco
Av., Chicago

Tools, Machinists'

Armstrong Bros. Tool Co., 808 N. Francisco
Av., Chicago

Tube Flanging Machines

Grant Mfg. & Mch. Co., Bridgeport, Conn.

Universal Drill Jigs

Heuser Mfg. Co., 1638 No. Paulina St.,
Chicago, Ill.

Universal Joints

American Tool Works, Inc., Hartford, Conn.
Boston Gear Works Inc., Norfolk Downs,
Mass.

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Ajax Mfg. Co., Pittsburg, Pa.
American Machinery Co., Cleveland, Ohio
Atlas Equipment Co., 114 S. Clinton St.,
Chicago, Ill.
Bernstein, Geo. M., 221 N. Elizabeth St.,
Chicago, Ill.
Bickford & Co., H., Lakeport, N. H.
Bieser Mfg. & Mch. Co., Springfield, Ill.
Brown Machinery Co., St. Louis, Mo.
Brownell Machinery Co., Providence, R. I.
Cincinnati Mch. & Supply Co., Cincinnati, O.
Clark Machinery Co., Cleveland, Ohio.
Clinton Machinery Co., 32 So. Clinton St.,
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Chicago, Ill.
Davis Machinery Co., Toledo, Ohio.
Eastern Machinery Co., Cincinnati, O.
Elyria Helting & Mch. Co., Elyria, Ohio.
Emerman & Co., Louis E., 1761 Elston Ave.,
Chicago, Ill.
Essley Machinery Co., E. L., 825 Kane St.,
Chicago, Ill.
Goldman, Harvey H., Detroit, Mich.
Herben Machinery Equipment Co., 30 S.
Clinton St., Chicago, Ill.
Hill, Clarke & Co., 845 W. Washington Blvd.,
Chicago, Ill.
Indianapolis Machinery & Supply Company,
Indianapolis, Ind.
Interstate Mch. Co., 130 S. Clinton, Chgo.
Interstate Machinery Corp., Jersey City, N. J.
Iroquois Machinery Co., Buffalo, N. Y.
Johnson & Sons Machinery Co., Wm. C.,
St. Louis, Mo.
Jones Machine Tool Co., Cincinnati, Ohio.
Kennard-Raffin Mch. Corp., Jersey City,
N. J.
Klauber Mch. Co., E. L., St. Louis, Mo.
Lucas & Son, J. L., Bridgeport, Conn.
McDonald Machinery Co., St. Louis
Marr-Galbreath Mch. Co., Pittsburgh, Pa.
Meyer Blower Co., Wm. W., 1045 West
Washington Blvd., Chicago, Ill.
Midland Steel & Equipment Co., 402 South
Clinton St., Chicago, Ill.
Midwest Equipment Co., 626 W. Lake St.,
Chicago, Ill.
Mid-West Machine Tool & Supply Company,
Davenport, Iowa
Miles Machinery Co., Saginaw, W. S., Mich.
Morey & Co., 45 Mill St., Astoria, Long
Island, N. Y.

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Noble Machinery Co., 217 Centre St., New
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Norton-Broadway Machinery Co., Cincinnati,
Ohio
O'Brien Machinery Co., Philadelphia
Oviatt & Co., D. C., Cleveland, Ohio
Osborne & Sexton Mch. Co., Columbus, O.
Reliance Machinery Sales Co., Pittsburgh,
Pa.
Reynolds & Son, George T., Providence, R. I.
Russell Machine Co., Pittsburgh, Pa.
Scott-Bansbach Mch. Co., 4607 W. 20th St.,
Chicago
Segal Machinery Co., 809 W. Lake St.,
Chicago, Ill.
Simmons Machine Tool Corp., Albany, N. Y.
Stegeman Machinery Co., Milwaukee, Wis.
Strong, Carlisle & Hammond Co., Cleveland,
Sun Machinery Co., 28 Van Buren Street,
Newark, N. J.
United Mch. & Supply Co., St. Louis, Mo.
Victor Machinery Co., 128 S. Clinton Street,
Chicago, Ill.
Victor Machinery Exchange, 251 Center St.,
New York City
West Penn Machinery Co., Pittsburgh, Pa.
White Mch. Co., A. D., 108 N. Jefferson
St., Chicago
Wiggleworth Mch. Co., Cambridge, Mass.
Wolick Machinery Sales, 21st & Marshal
Bldg., Chicago, Ill.
Zeave, Alex., 2107 Woolworth Bldg., New
York City

Valves, Foot, Lever & Solenoid

Nicholson & Co., W. H., Wilkes-Barre, Pa.

Vises, Drilling Machine

Armstrong-Blum Mfg. Co., 341 N. Francisco
Av., Chicago
Armstrong Bros. Tool Co., 808 N. Francisco
Av., Chicago
Graham Manufacturing Co., Providence, R. I.
Heuser Mfg. Co., 1638 No. Paulina St.,
Chicago, Ill.
Martin Tool & Die Works, J. E., Springfield, O.

Vises, Machinists'

Western Tool & Mfg. Co., Springfield, O.

Vises, Milling Machine

Graham Manufacturing Co., Providence, R. I.
Hartford Special Mch. Co., Hartford, Conn.

Vises, Shaper

Graham Manufacturing Co., Providence, R. I.

Welding Machines, Electric Spot

Elster Engineering Co., Inc., Newark, N. J.

Welding Machines, Resistance

Elster Engineering Co., Inc., Newark, N. J.

Wheel Dressing Diamonds

Menden Cutting Factorles, Inc., 505 Fifth
Ave., New York City

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Chicago Wheel & Mfg. Co., M. C. Tool Div.,
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Lists of Used and Rebuilt Machinery, either For Sale, Wanted, or For Exchange, set in uniform style, will be published in the Classified Section at the rate of 60 cents a line across the page, each issue, plus \$3.00 for name and address. Minimum charge, \$6.00. No display permitted.

Write directly to those offering the machines for sale, for prices and full descriptions. If what you seek is not advertised, use the blank enclosed to make known your wants in either new or used machinery and the publisher will pass them along to the advertisers.

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Shaper, 32" Cincinnati, m. d.
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Straightner, 1 1/2" & 4" Abramson.
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Pecorp.

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Drill, 20" Barnes, ail geared.
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Engine, Diesel 166 h.p. DeLaVergne
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Gear cutter, (Pinion) 1x1" S. & C.
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Hammer, 40 lb. Bradley, helve.
Hammer, 125 lb. Beaudry power.
Hammer, 200 lb. Bradley helve.
Hammer, 800 lb. Erie s. f. steam.
Hammer, 1000 lb. Chbg. steam drop.
Header, cold ¾" Waterbury-F.
Keyscater, 24"x2½" Morton.
Lathe, 26"x12" Bridgeford, t. a.
Lathe, 26"x16" Bridgeford g.h., t. a.
Lathe, 25 48"x9" centers, McCabe.
Lathe, 20"x8" Hendey, t. a.
Lathe, 20"x10" Hendey, t. a.
Lathe, 20"x10" American gd. hd.
Lathe, 14" Fay automatic.
Magnetic chuck, 14"x40" Heald.
Miller, universal No. 1½ Becker.
Miller, plain, No. 2 heavy Ohio.
Miller, No. 4 Ohio, table 101".
Miller, plain No. 2-B Milw. m. d.
Miller, plain No. 3 Cincinnati.
Milling & keyway att., No. 5 So. B.
Pipe machine, 8" Jarecki.
Planer, 30"x30"x10" Liberty, 3-hds.
Planer, 30"x30"x10" W.-P. 2-heads.

Press, No. 1 Manly arbor.
Press, Arch, No. 3A Mossberg.
Press, Arch, No. 3A Mossberg dial
feed.
Press, Arch No. 3-A Mossberg roll
feed.
Press, D.C. No. 138A Stoll, 3" stroke.
Press, embossing 50-ton Ferracute.
Press, horn, No. 2 Michigan.
Press, horn, 42-h. p. Toledo.
Presses, o. b. i., No. 4 Toledo.
Press, o. b. i., No. 3 Niagara.
Press, o. b. i., No. 4 Niagara.
Press, o. b. i., No. 21 Bliss.
Press, screw, No. 87 Niagara.
Press, S. S. No. 74½ S Bliss s. c.
Press, S. S. No. 75½ Bliss.
Press, Wheel, 60-ton, 34" W-S.
Punch & shear, Pels tr. comb., 1"x½".
Punch & shear, No. 52 Beloit.
Punch & shear, s. e., No. 6 L. & A.
Punch & shear, s. e., No. 4 L. & A.
Punch & shear, d. e., cap. 1½"x1".
Punch, gang, 45"-40 tons.
Rolls, 10"x3" U. S. Forming.
Saw, Cold, Espen-Lucas, 7" rds.
Shapers, 16" G. & E., "H. D." m. d.
Shaper, 24" G. & E., "H. D." for
motor drive.
Shaper, 20" Cincinnati, motor dr.
Shaper, 21" Smith & Mills.
Shaper, 24" P. & J., "R.T." m. d.
Shear, Schatz combined, 219 FA.
Shear, slitting, No. 24-S Buffalo.
Shear, gap, 42"x4"x18" gap.
Shear, squaring, 10"x16 ga. Ohl.
Shear, throatless, ¾" Lennox.
Slotter, Garvin, die, 12" R. T.
Tapping chucks, 3/16": ¾" and 2".
Testing machine, 100-ton Olsen.
Testing machine, Cement.
Turret, No. 4 W. & S. power feed
to turret.
Turret, 2"x24" J. & L., chuck.
Welder, arc, 200 amp. Lincoln, (4).

Partial List. Get Our Complete Stock List.

USED AND REBUILT MACHINERY

FOR SALE BY

United Machinery & Supply Co., 1241 Walton Ave., St. Louis, Mo.

Bolt cutter, 1" with 3 Landis heads. Brake, 10"x3/16" Ohls, m. d. Drill, multiple, 10 spindles, No. 2. Drill sharpener, full set dies. Lathe, Stark precision, 40 collets.	Miller, Cincinnati, production. Sand pumps, 6" and 10". Saw, Hunter hot, 24", motor drive. Shear, 7"x3/4" capacity. Welders, arc, belt drive, 300 amp.
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FOR SALE BY

Midwest Equipment Co.,

628-30 W. Lake St., Chicago, Ill.

Air compressor, 9x8, I. R. compl. Air compressor 19x12x16, I. R. compl. Grinder, universal, B. & S., No. 2. Grinder, No. 6 Gardner, b. b., 26" discs. Grinder, Cinc. No. 1 tool & cutter. Hack saw, Napier, pwr., 10x10" cap. Hoists, 2-ton Shepard, electric, a. c. Lathe, 17x8 Sidney, l. c. g., complete. Lathe, 16x8 Hendy, q. c. g., tap. att. Lathe, 14x6 Sidney, quick ch. gear. Lathe, 34x10 Wolcott, q. c. g., comp. Lathes, Stark 1" & 1/2" cap. with col. Miller, No. 5 B. & S., plain. Miller, No. 1 Kempsmith pl., comp. Planers, Lathes, Screw Machines, Air Compressors, Woodworking Machines.	Miller, No. 1 1/2 Rockford, plain. Miller, No. 2 Becker, vertical. Radial drill, 3' Cincinnati Bickford. Screw machines, No. 2 B. & S. automatic with slotting attachment. Screw machines No. 00 and No. 0 Brown & Sharpe, automatic. Screw machines, No. 4 Warner & S. Screw mchs., Nos. 4 & 3 Foster, w. f. Shapers, 14", 16", 20" and 24". Shear, Quickwork, pwr. dri 14 ga. cap. Shear, Beloit No. 52. Welder, arc, 300 amp. Wilson, m. d.
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FOR SALE BY

Scott-Bansbach Machinery Co., 4607 West 20th St., Chicago, Ill.

Miller, No. 2H B. & S. plain, cone type, with vise, c/s and arbors..... Miller, No. 2 MU. Garvin universal, fully equipped..... Miller, 12" Cincinnati, mfg. type, s. p. d., vise and pump..... Miller, Briggs, G. & E. manufacturing, 16"..... Miller, No. 5 Becker vertical, no rotary..... Miller, No. 7 Becker, Lincoln type..... Miller, Ingersoll slab, 42"x36"x9"..... Planer, 24x24x6 Ohio heavy duty, 1 head..... Planer, 36"x36"x12' Cincinnati with 2 heads..... Press, No. 0 Consolidated bench o. b. i. with mtr., 1 1/2" str. 350 lbs. 7 1/2 ton..... Press, No. 4 Ferracute o. b. i., 2" stroke, 3800 lbs., 35 ton capacity..... Press, No. 64 V. & O., s. s., d. c., 71 ton, 2 1/2" str., 22" between..... Punch, 10" throat, single end, Kneeland or Spaulding..... Riveter, No. 3 A, H. D. High speed hammer, cap. 1/2", belt driven..... Riveter No. 5 A, High speed hammer, cap. 1/2", motor shelf..... Saw, No. 2 Klem, band, for metal cutting, belt drive..... Saw, Napier, model B, band, for metal cutting, belt drive..... Scleroscope, Shore complete with stand and blocks, model C..... Shear, 30" Bertsch, 16 gauge, 12" gap, foot power..... Separator, National, oil, 11 quart capacity..... Separator, oil, American 1 1/2 bushel..... Slotting attachment for No. 3 Kempsmith miller..... Shaper, 20" Cincinnati, crank, back geared, vise and c/s..... Shaper, 24" Walcott, H. D., back geared crank, vise and c/s..... Swedger, No. 4 Etna, 2" tube capacity..... Tapper, Rickert-Shafer, 1/2" cap., bench type..... Tapper, No. 1 Garvin Automatic, capacity 3/8" iron, 1/2" steel..... Threader, 1" H. & G., floor type..... Turret lathe, 24x10" Milholland, for chuck and bar work..... Vertical attachment for No. 2 Brown & Sharpe miller..... Welder, butt, Toledo, 8 KW., capacity 1/2" round..... Welder, spot, American, 12 k. v. a., 12" throat, Type L. D. A.....	400. 350. 150. 75. 300. 75. 400. 250. 800. 100. 300. 700. 100. 150. 275. 300. 300. 125. 75. 50. 200. 100. 350. 400. 250. 50. 75. 100. 400. 100. 150. 200.
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USED AND REBUILT MACHINERY

FOR SALE BY

Mid-West Machine Tool & Supply Co.,

Davenport, Iowa

Drill, 4 spindle Avey No. 2MT, p.f.
Drill, ISS Garvin duplex, 2 1/2" cap.
Grinder, 10"x36" Norton.
Grinder, No. 10 B. & S. ext.
Hobbers, Nos. 3, 12-B & C.

Lathe, No. 9 LeBlond multi-cut.
Lathe, 18" Libby H. D., turret.
Millers, Nos. 0-V & 2 Brown & S.
Radial drill, 4" American sensitive.
Turret lathe, Nos. 2 & 6 Warner & S.

FOR SALE BY

Brownell Machinery Co.,

150 Pine St., Providence, R. I.

Grinder, No. 2 Morse universal.
Lathes, 12"x6" Lodge & Shipley, in pan, new 1928.
Lathe, 13" x 48" Pratt & Whitney Model "B"
Miller, No. 4 Cincinnati vert. s. p. d.
Miller, No. 2-B Brown & S. cone.
Millers, No. 1 Brown & S. plain.
Planer, 17"x17"x4" Whitcomb.

Planer, 24"x24"x6" Whitcomb.
Press, No. 4-K Bliss 75-tons embossing.
Swaging machine, No. 4 Dayton.
Screw mche., National Acme "B", 3-5/16", motor drive.
Screw machine, No. 6 B. & S., g. f. h.
Screw mche, No. 4 B. & S. wire feed.
Turret lathe, No. 2 American.

FOR SALE BY

The O'Brien Machinery Co.,

113 N. Third St., Philadelphia, Pa.

Angle flaring, Thomas, 8"x8" cap.
Bending roll, 10" H. & J. 1/2" cap.
Boring mill, 72" Bullard vert. 2 hds.
Boring mill, 3" universal horizontal.
Column facer, 14" Espen-Lucas.
Drill, Minster heavy duty 2 1/2" cap.
Grinder, 10"x52" Landis, self contained, plain.
Hack saw, 6"x6" Racine & Peerless.
Hammer, 800 lb. Erie, steam forging.
Lathe, 27"x12" L. & S. geared head.
Lathe, 42"x28" Fay & Scott b. dr.

Lysholm table, 50"x4" complete.
Miller, No. 3 Becker universal, range 30"x10"x18".
Nipple mches. 1 1/2", 2" & 4" dble. head.
Pipe machines, 2, 4, 6, 8 and 12" belt and motor drive.
Punch, beam, type IG Clev., 24" bms.
Punch, No. 3 Southwark 4"x1", mtr.
Shapers, 14, 16, 20 & 24" various makes
Shear, No. 5 H & J. s. e., 24" blades.
Slotter, 12" Dill, belt drive, all power feeds.

FOR SALE BY

J. L. Lucas & Son, Inc.,

3 Fox St., Bridgeport, Conn.

Boring mills, 24", 36", 42" Bullard New Era, v. t. l.
Bor. mill, 54"-61" Bullard MaxiMill.
Boring mill, 72" Colburn.
Bor. mill, 8" Bull. Mult-au-matic, md.
Coilers, No. 1 & 1 1/2 Sleeper Hartley.
Dieing mchs., H. & W. 25, 75, 150 ton.
Drills, 3', 5' Morris radial, s. p. d.
Drill, 4" American tri. purp., s. p. d.
Drill, 14" Leland-Gifford, p. f., m. d.
Eyelet machine, No. 156 Waterbury.
Grinder, 16" Blanchard surf., 25 h. p.
Grinder, 14" Pratt & Whitney surf.
Grinders, Nos. 1, 2, 3, 4 B. & S. univ.
Grinder, 16"x48" Land. ckshft., late.
Grinder, 18x55 Norton auto parts.
Hammers, 100 & 800 lb. Stand. auto.
Headers, Nos. 0, 1, 2, 4 Man. d. s. s. d.
Lathes, 14, 16, 18, 20" Amer., g. h., m. d.
Millers, Nos. 2, 2A, 3A B. & S. univ.
Miller, No. 2 Cin. univ. vert., m. d.

Miller, No. 3B K. & T. univ., m. d.
Miller, No. 2A Becker vertical.
Miller, No. 4 Cinti. vert. rotary.
Miller No. 2B K. & T. pl., dbl. arm.
Millers, Nos. 3 & 4 Cincinnati plain.
Planer, 36x36x16 D&H o. s., like new.
Press, No. 660 Toledo 100 ton, kjt.
Presses, EG52, EGF53, EGF54 Ferr, kjt
Presses, No. 4 & 5 V. & O. incl.
Screw mch., No. 00G B & S high sp.
Screw mchs., Nos. 00G, 00G, 2G B&S
Screw mch., No. 0 B&S high speed.
Screw mch., No. 6 B & S automatic.
Screw mch. 1 1/2" G Gridley m. d., a. c.
Shapers, 16" & 24" G. & E. h. d., m. d.
Slitter, No. 0 Wat.-Far. gang.
Thread rollers, Nos. 1B, 2B Man. scr
Tur. lathes, Nos. 1B, 2B Foster univ.
Tur. lathes, Nos. 4, 2A, 3A W&S uni.
Wire form., Nos. 0, 1, 3, 3-24 Baird 4 s.
Wire form., Nos. 3 Nilson; 4 Man. 4sl.

USED AND REBUILT MACHINERY

FOR SALE BY

McDonald Machinery Co.,

1535 N. Broadway, St. Louis, Mo.

Bolt mchs., Landis & Acme 1½".
Boring mill, Lucas No. 21 horizontal.
Brake, D. & K. 6' 10 ga., pwr. leaf.
Brake, Ohi 8' 10 ga. power press.
Drills, Cin-Bickford 3' & 3½ radials.
Drill, Sipp 4-sp., h. s., b. b. pwr. fd.
Gear hobber, G. & E. 24" & 60".
Grinders, B. & S. No. 2 surf. & univ.
Grinder, P. & W. 14" vert. surf.
Ironworkers, Buffalo No. 0 univ.
Keyseaters, M. & M. No. 2.
Lathes, F. & M. 60"x26" bed; LeBlond
21"x19", q. c. g.; 50 others in stock.
Milling machines, B. & S. No. 5, vert.
Milling mchs., B. & S. No. 1½ Cinc.
No. 1½, Hendey No. 1-B, Kemp.

No. 3; Ohio No. 29; vertical slott.
attch., all universal; Kemp. No. 1.
LeBlond No. 3-H; Brown & S.
No. 3-B, s. p. d., Brown & Sharpe
No. 3, all plain, Cincinnati 12".
Mfg.; Cin. No. 2 s. p. d. hi-duty pl.
Punch press, d. c. grd., 79" between
uprights, 5" stroke, wt. 39,000 lbs.
Screw machines, Foster No. 5, gr. hd.
Shapers, G. & E., S. & M., Cin., Ohio,
American, Steptoe, Queen City,
12", 16", 18", 20", 24" and 26".
Square shears, Hertsch 10' 16-ga.
Turret lathes, W. & S. No. 2A univ.
Turret lathes, Libby 18" geared
head universal, Gisholt univ.

FOR SALE BY

Wm. C. Johnson & Sons Machinery Co.,

1211-1223 Hadley Street,

St. Louis, Mo.

Air compressor, 12"x10' Chgo., belted
Bar shear, 8" x 1½".
Bolt threaders, 1" & 1½" Landis.
Boring mills, 36", 42", 60" & 72".
Bulldozers, No. 3 and No. 4.
Drill, 1 spindle Avev.
Drill, 6' arm American radial.
Grinder, 12"x60" Landis universal.
Grinder, 12"x36" Thompson univ.
Grinder, 24"x96" Landis cylinder.
Grinder, No. 60 Heald cylinder.
Hammer, No. 3B Nazel.
Lathe, 16"x7' P. & W., geared head.
Lathe, 16"x9' Lehman.
Lathe, 24"x12' Schumacher & Boye.
Lathe, 36"x15' American, q. c. g.

Lathe, 18"x12' South Bend.
Miller, No. 2 Cincinnati, plain.
Miller, Ingersoll slab, 27"x23"x14"
bed, 4 heads, motor drive.
Pipe machines, 4" and 8".
Planer, 60"x48"x10' Gray.
Press, No. 24 Toledo cam drawing.
Press, No. 59 Niagara grd. tie rod.
Press, No. 723 Toledo cam drawing.
Punch, No. 14 W. W., 12" throat.
Punch, two 20" throats, cap. 1" in 1".
Sand slinger, Beardsley & Piper.
Shapers, 16" & 26" Smith & Mills.
Shear, circle, No. 310 Niag. 48" thr.
Turret lathe, No. 3A W. & S., 8"
hole, motor drive.

FOR SALE BY

Brown Machinery Co.,

2333 N. 9th St., St. Louis, Mo.

Brake, 8' 16 ga. Whitney-Jen., new.
Broach, No. 1 LaPointe, sgl. spdl.
Drills: 24", 28" and 32"; No. 66-D
Moline 4-spindle Hole Hog.
Drill, Allen B., single spindle, m. d.
Drill, Demco b. b., m. d.
Grinders: No. 6 Besly dbl. spindle;
No. 220 Badger auto. disc; 12x30"
Modern, plain, s. c. c. s.; No. 4
Cincinnati, 14x72 cylindrical; P. &
W. 36" vertical surface.
Groover, power, 6' horn.
Lathes, 30" Blaisdell, 28" Harrington
gap, ext. bed; 26" Putnam, taper
att., 18" & 16" Lodge & Shipley;
16" & 14" Monarch; 7"x6" Lo-swing;
No. 4 Wood Tilted Turret.
Millers: No. 2 Hendey-Norton, univ.;

No. 3½ Fox; No. 4 Hendey Lincoln;
American No. 1½ plain.
Planer, 42x42x10 Pond.
Press, No. 7 Zeh & Hahneman,
Nos. 1, 3, 4 Loshbough-Jordan.
Punch, Cleveland C. in 1"; Rock
River Style L. in 1".
Punch & shear, No. 9C Beloit. in 1".
Punch & shear, L. & A. 4" cap.
Riveter, No. 5A High Speed, 4".
Shaper, 24" Ohio; 20" Queen City.
Shaper, 20" Columbia; 24" G. & E.
Shear, 62" underdriven, cap. 10 ga.
Shear, 4" Lennox bevel.
Threaders: 4" Geometric; National
1½" double head and single head.
Upsetter, 3" Ajax, steel bed.
Welder, 20 k. w. Agnew.

USED AND REBUILT MACHINERY

FOR SALE BY

Midland Steel & Equipment Co.

400 S. Clinton St., Chicago, Ill.

Hack saw, 8x8 Racine high speed.
Lathe, 20"x8' Walcott, q. c. g.
Miller, No. 4 Becker plain.
Radial drill, 3' Western.
Radial drill, 5' Cincinnati-Bick. univ.

Shaper, 14" Rockford.
Shaper, 24" Rockford.
Sheet leveler, 36" Poole, 16 ga.
Stromberg Electric Time System,
with 12-job recording clocks.

FOR SALE BY

H. F. Wolnick Machinery Sales

Phone Lawndale 1777

21st & Marshall Blvd., Chicago

Drills, 1 to 6 spindles.
Bench lathes and drills.
Lathes, 12" to 24", various lengths.
Millers, horizontal and vertical.
Planers, 24x24 to 60x60x10-12-20'.

Press, No. 78 Toledo, geared m. d.
Punch presses, o. b. i. Nos. 1 to 6.
Screw mach., B & S. Gridley, Acme.
Shapers, 16", 20", 24".
Gear hobbers, shapers, generators.

FOR SALE BY

Herben Machinery Equipment Co., 28-30 S. Clinton St., Chicago, Ill.

Brake, 3', 16 ga. D. & K.; 8' 18 ga. \$50.
Ironworker, No. 10 Pels, 4x4x1" ang.
Lathes, 20x12 Hendey q. c. g., t. a.,
20x10 Prentice s.p.d., q. c. g., t. a.
Millers, No. 1 Kemp. pl.; No. 3 Kemp.
univ.; No. 3 B. & S. No. 5 B. Becker
Lift, 10' Economy, m. d. 95¢ new.

Presses, o. b. i., No. 1 Tol.; No. 32 P
Toledo; Nos. 93 & 94 Bliss.
Shears, 30, 36, 62, 96" ft.; pwr., all sizes
Screw mchs., auto.; Nos. 52 Acme &
00 Brown & Sharpe; hand, 1" Mil.
Nos. 0 and 2 Foster, 1000 parts
and collets.

FOR SALE BY

Reliance Machinery Sales Company

1405 Brighton Road, N. S.

Pittsburgh, Pa.

Boring mill, 42" King vert. a.c. m.d.
Bulldozers, Nos. 1, 3, 4, 5, 9 W.-W.
Drill, 4 spindle No. 4 Colburn.
Drill, radial, 24" Mueller, s. p. d.
Lathe, 48"x20' Betts-Bridge, m. d.
Miller, vert., No. 5-C Becker.
Presses, Nos. 34 & 4 Toledo, o. b. i.
Press, No. 6-B Bliss double crank.
Press, No. 39 Bliss horn., adj. table.

Press, trimming, No. 744 Bliss, flyw.
Saw, 12"x12" Racine hack.
Seamer, No. 3 Swaine, double.
Shapers, 18" to 32", belt and m. d.
Shear, Marshalltown throatless, 8".
Shear, 5'x16 ga. Bertsch squaring.
Shear, 11'x18 ga. Canton squaring.
Shear, allig., Canton Steel, 4'x4".
Shear, allig., Canton, 14" sq. m. d.

Forging hammers, Trimming presses, etc.

FOR SALE BY

Geo. M. Bernstein & Co.,

14 S. Clinton St., Chicago, Ill.

Brake, 6'x14" D. & K power apron.
Boring mill, 42" Baush vertical.
Drills, 20" to 42" Barnes, sldg. head,
b. g., p. f., tapping attachment.
Grinder, No. 3 W. & M. surf. mag. ck.
Grinder, No. 13 B. & S. universal.
Keyseater, No. 2 Davis, 16 cutters.
Planer, 36"x10' D. & H. open; 3 hd.
Screw mach., 3 & 4" Clev. auto. "A"
Shaper, 12" Smith & Mills, crank.
Shaper, 18" Barker & Chard, crank.

Shear, 6'x14 ga. L. & M. power.
MILLERS:—
24" Cleveland horizontal bore.
No. 1 Brown & Sharpe plain.
No. 1 Kemp. univ.; vert. & div. hds.
No. 1 Bickford hand, power feed.
No. 14 Brown & Sharpe plain.
No. 14A Rockford plain.
No. 4 Burke hand, power feed.
44x12" Pratt & Whitney thread.
No. 5 Ingersoll, vertical & horiz.

USED AND REBUILT MACHINERY

FOR SALE BY

William W. Meyer Blower Sales Co.,

1045 W. Washington Blvd.,

Chicago, Ill.

BLOWERS AND FANS

Blowers, Connorsville—Root positive pressure.

Centrifugal blowers.

Ventilating fans.

Blowers of all descriptions available. What do you need?

FOR SALE BY

Alex Zeeve, 2107 Woolworth Bldg., New York City

Lathe, Niles-Bement-Pond, 28"x14', heavy duty, q. c. g., taper attachment.

Lathes, Boye & Emmes 27"x12' heavy duty, quick change gears, (3).

Lathe, Boye & Emmes 24"x10' heavy duty, quick change gears.

Planer, Whitcomb-Blaisdell 36"x36"x16', 2 heads.

Radial drill, Mueller 4' heavy duty, s. p. d. thru gear box.

Shaper, Smith & Mills 28" heavy duty, s. p. d. thru gear box.

Also other desirable tools—write or wire us.

FOR SALE BY

F. A. Schack, Trustee-In-Bankruptcy

Fort Wayne National Bank,

Fort Wayne, Ind.

Boring mill, No. 2 Barrett, horizontal, 5" bar.....\$ 225.

Drill, 6' Baush, radial, arranged for m. d..... 100.

Drill, 42" Baush & Harris, radial, b. d..... 85.

Hammer, 1100 lb. Morgan, single frame, steam or air..... 175.

Planer, 72"x72"x24' Niles, 4 heads..... 900.

Planer, 96"x48"x13' Pond, 4 heads..... 425.

Pratt & Whitney Plug & Ring Gauges, $\frac{1}{8}$ " to 3" incl..... 55.

FOR SALE BY

The Elyria Belting & Machinery Co.,

Corner Williams and Buckeye Streets,

Elyria, Ohio

Blower, 1lg. $\frac{1}{2}$ h. p. motor, like new.

Blower, Roots rotary, pressure.

Boiler, Leffel, 15 lb. pressure.

Bulldozers, Nos. 3 and 5 Williams & White.

Crane, Milwaukee 2 ton, 37', cab-operated.

Drill, American 4' radial, single pulley drive.

Engine, Troy vertical throttling, 36 h. p., 9x9 cylinder.

Hammer, Beaudry Champion, power.

Motor, 100 h. p. synchronous, 50 deg. 80% p. f., 90% new.

Press, No. 55 Toledo, 16" stroke, straight side.

Wood-Working Machinery

If interested in either new or used wood-working machinery, consult **Wood-Working Machinery**—a monthly publication similar to this, but devoted to the advertising of wood-working and saw-mill machinery and allied equipment.

A copy may be had free of cost on application to the publisher, **Hitchcock Publishing Co., 508 S. Dearborn St., Chicago, Ill.**

"RE-MANUFACTURED"

BORING MCHES. (Hor.)

No. 0 GIDDINGS & L., 3" bar.
No. 3-A UNIVERSAL, 3" bar.
No. 3 HAMILTON, 4 1/2" bar.
5" bar, N. B. P. Floor Type.

BORING MILLS (Vert.)

32", 42" KING, M. D.
36", 42" BULLARD "New Era"
61" BULLARD MAXI-MILL.
10' NILES, belt drive.

DRILLS (b. b.)

1, 2, 3, 4, 6 spdl. LELAND-GIF.
2, 6 spdl. HENRY & WRIGHT.

DRILLS (Mfg.)

Nos. 2 & 14 COLBURN, 1, 2, 4 sp.
Nos. 121 & 217 BAKER, M. D.
No. 314 BAKER, S. P. D.

DRILLS (Radial)

3', 4' WESTERN.
5' AMERICAN, triple purpose.
6' AMERICAN, full universal.

GEAR CUTTERS

No. 3 B.-C. Hob. Sharp.
Nos. 3 & 12 BARBER-COL.
Nos. 9-H & 18-H G & E. Hob.
Nos. 6, 65, 61, 612 FELLOWS.
Nos. 7, 75, 715, 615 FELLOWS.
6" & 18" GLEASON Bevel Gear.

GRINDERS (Plain)

6" x 20" LANDIS, Hydraulic.
6" x 32" NORTON, M. D.
Nos. 10, 11 12 B. & S.
10" x 24", 36", 50" NORTON.
10" x 72", 10" x 96" NORTON.
11" x 20", 36", 52" LANDIS.
11" x 36", 14" x 72" NORTON.
11" x 96" NORTON, M. D.
20" x 120" LANDIS, M. D.

GRINDERS (Univ.)

Nos. 13, 1, 2 B. & S.
No. 2 & No. 24 BATH UNIV.

GRINDERS (Misc.)

6" TAYLOR & FENN, Internal.
Nos. 60 & 70 HEALD Internal
No. 22 HEALD, Rotary Surface.
14" x 36" PRATT & W. Surface.

JIG BORER

No. 2 PRATT & WHITNEY.

LATHES (Screw Cutting)

13" x 6" LeBLOND, S. P. D.
16"-18" x 6" AMERICAN, rel. att.
16"-18" x 8", 10" L. & S. Sel. G. H.
18"-20" x 8" AMERICAN G. H.
20"-22" x 8", 12" L. & S. Sel. G. H.
24"-27" x 12", 18" L. & S. Sel. G. H.
36"-40" x 14", 22" L. & S. Sel. G. H.
36" x 31" RAHN LARMON G. H.
66" x 21", 36" PUTNAM T.G. M. D.

MILLERS (Thread)

4 1/2" x 12" PRATT & WHITNEY.
6" x 14", 6" x 48", P. & W.
6" x 89" PRATT & WHITNEY.

MILLERS (Plain)

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No. 1-B MILWAUKEE, mtr. dr.
No. 2-B MILWAUKEE, S. P. D.
Nos. 2 & 3 CINN. H. P., S. P. D.
No. 3-B MILWAUKEE, S. P. D.
Nos. 4 & 5 CINN. H. P., S. P. D.

MILLERS (Univ.)

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No. 2 BROWN & SHARPE.
No. 3 GSHENDEY, S. P. D.
Nos. 3, 4 CINN. H. P., S. P. D.

MILLERS (Vert.)

No. 2 M CINCINNATI.
No. 4 CINN. H. P., M. D.
No. 5 BROWN & SHARPE.
No. 3 CINN. H. P., motor-in-base.
No. 4 CINN. H. P. inter. fds.

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36" x 36" x 10" GRAY, rev. m. d.
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No. 63 CONSOLIDATED, S. S.
No. 363 BLISS, S. S.
No. 203-32" TOLEDO.
No. 173-A CONSOLIDATED.
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No. 2 G B. & S. Auto. Scr., M. D.
No. 2 W. & S., Screw, M. D.
No. 4 W. & S., Screw, M. D.
No. 4-1-9/16" B. & S. Screw.
Nos. 1A & 2A W. & S. Univ. Tur.
Nos. 3A & 4A W. & S. Univ. Tur.
18"-3-9/16" LIBBY, motor drive.
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 Blevney Production Grinder, belt.
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 No. 11 Brown & Sharpe Plain Cylindrical, single pulley drive.
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 16³ Springfield, B. G., m. d. thru gear box.
 20³ Cincinnati, B. G. cone.
 20³, 25³ Smith & Mills, B. G., cone.
- 24³, 28³ Gould & E. B. G., cone.
 24³ Potter & Johnson Universal, cone.
 24³ Stockbridge B. G., motor drive.
 28³ Ohio B. G., cone.
 26³ Kelly B. G., cone.

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- 60³ Bausch, 2 heads.
 62³ Niles, m. d., p. r. t., 2 heads, late.
 64³ Bullard Spiral Drive, m. d., latest.
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No. 206B Toledo D. C. Geared, weight 33,400 lbs., 4³ stroke
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 20³x8¹ American Geared Head.
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 No. 3A Heavy B. & S. Univ., m. d.
 No. 3 Ohio Universal, cone.
 No. 3 Kempsmith Universal, cone.
 No. 2A Hendey-Norton Univ., m. d.
 No. 1 Cleveland Universal, s. p. d.
 No. 2 1/2 B. Milwaukee Vertical, s. p. d.
 No. 3 Cincinnati Vertical, s. p. d.
 No. 6 Becker Vertical, cone.
 No. 13B B. & S. Pl., stand. sp., late.
- No. 2, 3, 4, 5 Cincinnati Plain, s. p. d.
 No. 3B, 3B Heavy, 4B Heavy, 5B Heavy Brown & Sharpe Plain, taper spindle, motor drive.
 No. 2B, 3B Milwaukee Plain, s. p. d.
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 24³ Cincinnati Auto. Duplex, m. d.,
 48³ Cincinnati Plain Automatic,
 No. 21 Brown & Sharpe Automatic.
 No. 33 Kempsmith Production.

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- Radial, 5¹ American Triple Purpose
 Plain, gear box on base.
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5½x26" Greenfield Cutter, with Cab.

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No. 3 Minster, 1½" Stroke, O. B. I.
No. 3 R. & K., Arch., 3" Stroke.
No. 18 Bliss, 1½" Stroke, O. B. I.
No. 3 Moore, 2" Stroke, O. B. I.
No. 4 Toledo, 1" Stroke, O. B. I.
No. 4½ Niagara, 2" Stroke, O. B. I.
No. 5½ I. Cleveland, 3" Str., O. B. I.
No. 5 Toledo, 2" Stroke, O. B. I.
No. 2½ V. & O., 1" Stroke, O. B. I.
No. 3 Hoeft, 1¼" Stroke, O. B. I.

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No. 1 J. N. LaPointe Broach.
No. 2 LaPointe Broach.

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No. 2 Cincinnati Plain, 3-Step Cone.
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No. 1 Brown & Sharpe Plain, rack fd.
No. 1 Bristol Hand Mill.
No. ½ Van Norman Duplex Plain.
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No. 0 B. & S., Power Feed.
No. 6 Cincinnati Plain.
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Knight Vertical, 4 Step C., S. P. D.,
7x28 Table.

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Wells 1½" Cap.

SHAPERS

24" G. & E., 4 Step Cone.
12" Smith & Mills, O. B., S. C.
14" Smith & Mills, 4 Step Cone.
26" Niles Bement & Pond, G. G.

PLANERS

36 widened x 12, Whitcomb, 2 heads.
48"x48"x15' Am. Tool Wks., 4 hds.

LATHES

16x8 Rahn, Q.C., 3 St. C., Fric. Hd.
12x5 Davis Plain, 4 Step Cone.
14x5 Reed Plain, 4 Step Cone.
17" LeBlond Heavy Duty, Qk. Ch.,
Mfg. type, arr. for motor drive.
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48x18 J. J. McCabe, double spindles,
faceplate type chuck, tool post.
36" Pond, triple back geared, plain,
16" bed, 10" centers.
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32x20 New Haven Plain.

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¾" Cap. Elgin Bench Lathe.

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Nos. 0 & 00 B. & S. Automatic.
No. 0 Brown & S., Hand, 3 Step Cone.
No. 4 Warner & Swasey Plain, B. G.,
Friction Head, 3 Step Cone.
Model B Woods Tilted, ¾" Cap. W.
F., 3 Step Cone.

Model D, Woods Tilted, B. G., Fric-
tion Head, 3 Step Cone.

No. 0 Foster, W. F., 3 Step Cone.
No. 3 Warner & S., Flat Turret Lathe.
No. 515 Acme Auto. Screw Mehe.
24x6½ Gisholt Hex. Turret Lathe.

DRILLS

4 spindle Allen; 2 spindle Avey.
24" W. F. & J. Barnes, B. G.
20" Canedy-Otto, B. G., 4 Step C.
21" Canedy-Otto.
Demco High Speed, Ball Bearing.
20" Rockford, 4 Step Cone.
No. 3 Henry & Wright.
Leland-Gifford 2 Spindle, Ball Bear-
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RADIAL DRILLS

3" American Sens., Arr. for M. D.
4" American Radial, Arr. for M. D.

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No. 0 Canedy-Otto; No. 26 Atlas.
32" Weaver, High Speed.
No. 2 Greenerd; No. 1 Eames.
28" Reliance.

GEAR MACHINERY

No. 8 Lees-Bradner Thread Miller.
No. 612 Fellows Gear Shaper.
16" G. & E. Hobbing Machine.
11" Gleason Rev. Gear Generator

MISCELLANEOUS

No. 1 Racine Hawk Saw, 6x6, Power.
High Speed Riveting Hammer, M. D.
22" Square Shear, wired for M. D.
Marshalltown Throatless Shear.
42" Power Shear.
4" Power Brake.
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Air Compressors.
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14"x6" Monarch.
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16"x10" South Bend gap.
16"x8" Cisco, geared head.

19"x10" Sidney.
20"x8" American, geared head.
20"x12" American, geared head.
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24"x12" Milwaukee.
26"x14" Putnam.

MILLERS

Nos. 2, 3 & 4 Cincinnati.
Nos. 17, 2 & 3 Brown & Sharpe.
Nos. 17, 2 & 24 Rockford.
Nos. 14A & 3B Milwaukee.
No. 2 LeBlond.
No. 3 Kempsmith.

No. 1 Cleveland universal.
No. 25 Ohio universal.
No. 3 Kempsmith universal.
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No. 2 Cincinnati vertical.
Nos. 4B & 6 Becker, vertical.

PLANERS

20"x20"x4" Wheeler.
22"x22"x4" Powell.
24"x24"x6" Woodward & Powell.
26" Lynd Farquhar open side.
30"x30"x8" Cleveland open side.
30"x30"x12" Cleveland open side.
32"x32"x12" Niles.

36"x36"x8" Gray.
36"x36"x10" Cincinnati.
36"x36"x12" Woodward & Powell.
36"x36"x12" Cincinnati, heavy.
36"x42"x12" Cleveland open side.
42"x42"x12" Cleveland open side.
72"x60"x14" Cleveland open side.

SHAPERS

15" & 24" Potter & Johnston.
16" Smith & Mills, s. p. d.
16" Kelly.
16" & 26" Milwaukee.
20" Steptoe.
20" & 24" Gould & Eberhardt.

20" Hendy friction.
24" American, single pulley drive.
26" Lynd Farquhar open side.
28" Columbia.
32" Walcott.

PRESSES

Nos. 3 & 5 Toledo, O. B. I.
No. 3 Moore, O. B. I.
No. 3 Consolidated, O. B. I.
No. 41 Niagara, O. B. I.
No. 6 Adriance, O. B. I.
Nos. 75 & 77 Toledo, open back.
No. 5N American Can, open back.
No. 73 Consolidated, open back.
No. P3 Ferracut, punching.
No. 91 Consolidated, punching.
82" Ferracut 5154 double crank.
48" Toledo No. 924C, double crank.
34" Bliss No. 4, double crank.

31" Bliss Stiles No. 91, dbl. crank.
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No. 266 Consolidated, cam drawing.
No. DDG 54 Ferracut, cam draw.
25-ton Henry & Wright dicing.
No. 41 Toledo geared, horning.
No. C82 Ferracut, notching.
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No. 744 Bliss straight side.
Nos. 62, 64, 65 & 67 Consolidated.
Nos. 56 & 57 Toledo, s. s.
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MISCELLANEOUS

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9"x8" Chicago compressor.
8"x14 ga. Chicago brake.
20-ton American hyd. broach.
21", 24" & 42" Cincinnati drills.
3" & 6" Cincinnati radials.
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1". No. 00 Baker keyseater.
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52" & 62" King mills.
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30" Retts slotter, m. d., prt.
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36"x16" Lodge & S. Sel. Grd. Hd.
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30"x14" L. & S., 3 S. C. D., D. B. G.
24"x12" L. & S. Patent Grd. H. S. P. D.
21"x10" LeBlond, Geared Head.
20"x16" American, Geared Head.
21"x10" LeBlond Geared Head.
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36BM Gould & E. Gear Rougher.
No. 3, 26" Brown & S. Gear Cutter.
No. 4, 48" Brown & Sharpe.
Nos. 1, 2, 4 Adams Farwell Gear Hb.
18-H Gould & Eberhardt Hobber.
24H G. & E. Hobber.
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1/2" Landis Double-Spindle.
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84" Cincinnati Rap'd Production.
24"; 36" and 42" Bullard "New Era"
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60" Niles Boring Mill, 2 heads.

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No. 4 Cincinnati H. P. Pl., S. P. D.
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No. 3-B Milwaukee Pl., Dbl. O. A.
Nos. 3; 5-B; 6 Becker Vertical.
No. 2A Brown & S. Univ., S. P. D.
No. 3 Cincinnati Vert. H. P., S. P. D.
Nos. 2 and 3 Cincinnati High Power
Plain, S. P. D. flange nose
No. 2 Cin. H. P. Rect. O. A. m-i-b.
No. 2 Cincinnati Universal H. P.
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4 1/2"x12" Pratt & Whitney Thread Miller
No. 3 & 3-E Lees-B. Thread Millers.

Planers

24"x24"x8" Gray Planer.
30"x24"x11" Detrick & H. Openside.
36"x36"x10" Gray, 2 heads.
42"x36"x12" Ingersoll, 4 Hds., Adj. Rl.

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2 1/2" Cinti-Bickford Radial, S. P. D.
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3, 3 1/2, 4 American Trip Pur. S. P. D.
3" Bickford Plain, S. P. D.
4" Heavy Duty Fosdick, S. P. D.
4" Cinti.-Bickford Univ., S. P. D.
6" American Triple Purpose, S. P. D.
No. 2 Colburn Mfg. H. D. 2-spindle.
No. 40 Natco Straight Line Multi.

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16", 20", 24" G. & E., mtr. dr. thru g. b.
16", 20" and 24" G. & E., cone drive.
20" Steptoe, S. P. D.
24" Potter-Johnson M. D. thru gear box

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80lb. Bradley Cushion Helve Hammer
High Speed Riveting Hammers.
Nos. 1 & 3 Baker Keyseating Mches.
No. 2 Mitts & Merrill Keyseater.
Nos. 1 & 2 Davis Keyseaters.
V-18 Amer. Vert. Broaching Mche.
15, 30 & 50 Ton Lucas Forcing Pr.
56 Adriance Geared Press.
No. 50 Toledo Arch Press, 10" stroke.
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Lucas Horizontal, 3" bar.

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8' x 10 Gauge Geo. Ohl, Motor Dr.
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10' x 7/16" Sonntag, Armor-pl, M.D.

Drills

4' Niles Universal.
5' Drees Radial, Motor Drive.
5' N. B. P. Radial, Semi-Univ.
6' American Triple Purpose, (2).
6' Cincinnati Bickford Radial.
1 spindle Sipp, High Speed.

Gear Cutters, Etc.

No. 13 B. & S. Heavy NEW.
No. 13 B. & S. Light.

Grinders

No. 3 Abrasive, horiz. spindle.
No. 2 Diamond, Belt.
No. 13 B. & S. Univ. & Tool, Belt.
No. 20 Heald Rot. Surfacers, S. P.
16" x 48" Landis Crankshaft.
No. 70 Heald Internal, Belt.
No. 75 Heald Internal, Belt.

Lathes

12" x 5' Cleveland, Gd. Hd., (8)
16" x 6' Lodge & S. Geared Head.
18" x 10' American, Grd. Hd. (2).
33" x 12' Lodge & Shipley Cone.
36" x 22' New Haven, Q C.G. Hvy.
46" x 28' Houston S. & G., G.H. (2)
60" x 50' Pond, Cone.

Milling Machines

No. 2 B. & S. Vertical.
No. 3B Milwaukee Univ. S. P.
No. 3 Cincinnati, Uni. Cone, (2).
No. 3 Cincinnati, Plain, M.D. (2).
24" Cincinnati Duplex.
No. 2 Garvin Duplex.
No. 2 Knight Vert. Milling & Drill.
No. 20 Ohio Universal Cone.

Presses

No. 1 1/2 Bliss Toggle.
No. 6 Toledo, Flywheel.
No. 7 Bliss Consolidated.
No. 8 Perkins Knuckle-Joint Embossing 250 ton capacity, (2).
No. 5A Toledo, Geared (2).
No. 5A Toledo, Flywheel M.D. (2).
No. 6 Toledo Geared (4).
No. 203-D Toledo, Double Crank.
No. 5 V. & O.

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10' x 1/2" Bertsch.
48" x 3/8" Niles Straightening.

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80" x 5/8" Pels Armor Plate, Gate
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8' x 3/16" Geo. Ohl, M. D.
10' x 3/16" Geo. Ohl, M. D.
10' x 1/4" Loy & Nawrath, M. D.
No. 3A Royersford D. E. Punch & Shear, Motor Drive, NEW.
No. 3 Ryerson Friction Saw, A.C. Motor.

Turret Lathes

1 1/4"-1 3/4"-2 1/4" Gridley Automatics.
No. 4 W. & S. Universal Belt.
No. 2 W. & S. Fox Monitor.

Miscellaneous

8" Williams Pipe Machine.
8" Landis Pipe Mch., Type 8-47-2.
No. 4-E Klier Die Sinker, M. D.
Hayes Elec. Furnace.
1 1/2" Ajax Upsetter & Forger.
10" Dill Slotter.
16" H. & J. Plate Planer.
8x8 Ing Rand Air Compressor.
25 K. W. Gen. Elec. Generators, Gasoline driven, (2) NEW.
No. 3 Greenerd Arbor Pr NEW.
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No. 00 Baker Keyseater.

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- 1—No. 97-F Toledo
- 1—No. 97-C Toledo
- 1—No. 96-F Toledo
- 9—No. 96-C Toledo
- 2—No. 95-H Toledo
- 7—No. 95-F Toledo
- 7—No. 95-E Toledo
- 19—No. 94½-E Toledo
- 1—No. 94½ Toledo
- 1—No. 94-I Toledo
- 1—No. 94-H Toledo
- 2—No. 94-E Toledo
- 1—No. 94-D Toledo
- 1—No. 94-C Toledo
- 1—154-C Cleveland
- 1—No. 54½ Hamilton

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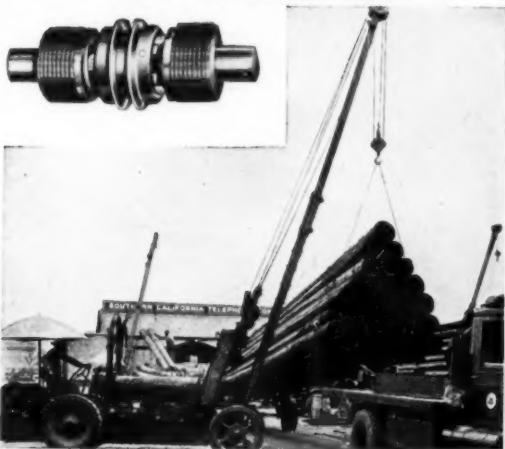
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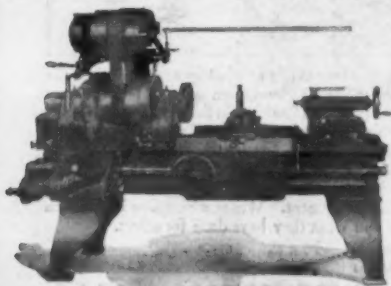
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